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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,125	12/29/2000	Mitsuhiro Kanada	Q62454	6746

7590 10/06/2005
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EXAMINER

CHANG, VICTOR S

ART UNIT PAPER NUMBER

1771

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,125

Applicant(s)

KANADA ET AL.

Examiner

Victor S. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. The Examiner has carefully considered Applicants' Declaration and remarks filed on 8/23/2005.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Rejections not maintained are withdrawn.

Rejections Based on Prior Art

4. Claims 1, 3-10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/47573 in view of Nakae et al. (US 4353817), generally as set forth in section 4 of Office action dated 2/23/2005, together with the following response to argument.

First, for the purpose of clarification, the Examiner repeats the relied upon prior art as follows: WO '573 is directed at a low-density microcellular thermoplastic elastomeric foams with closed cells. The foam is made using supercritical fluid CO₂ as the blowing agent (Abstract). The polymer and the blowing agent are mixed in the melt stage in a tandem extruder under high temperature and pressure, subsequently the temperature and pressure are reduced to initiate foaming (page 3, lines 9-17). Depends on pressure drop rates between 0.1 to 15 GPa, thermoplastic foams having various densities between 6 to 14 pcf, and uniform cell sizes of about 100 to 150 microns are

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obtained (page 4, lines 8-30). Various foam properties such as the density, cell structure and size, compression set, etc. may be adjusted by varying the foaming conditions (page 5, lines 23-26). The optimal compression set is less than about 30% (page 5, line 30). Table 1 shows suitable foam materials include SANTOPRENE[®], SEBS resin, polyethylene, etc. Further, WO '573 expressly teaches that SANTOPRENE[®] is a blend of polypropylene and ethylene propylene (EPDM) copolymer (page 3, lines 2-5). While WO '573 lacks a teaching of incorporating hydrated metal compounds as flame retardants in the foam, it is noted that Nakae's invention is related to polymer foams with high flame retardancy (Abstract). Nakae expressly teaches that by adding hydrated metal compounds render the polymer foams highly flame retardant (column 2, lines 52 to column 3, line 11). Further, Nakae discloses that the hydrated metal oxide has a general structural formula $M_mO_n \cdot xH_2O$, or a double salt containing compound, such as magnesium hydroxide ($MgO \cdot H_2O$ or $Mg(OH)_2$), zirconium hydroxide ($ZrO \cdot nH_2O$), borax ($Na_2O \cdot B_2O_3 \cdot 5H_2O$), etc. (column 7, lines 21-37). As such, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to incorporate hydrated metal compound in the thermoplastic foams, as taught by Nakae, motivated by the desire to improve the flame retardancy of the foams made by the methods taught by WO '573. In particular, it is noted that Nakae's double salt containing compound reads on the composite metal hydroxide as claimed.

Referring to the composite flame retardant, Applicants' repeated argument "there is a lack of motivation to combine the references, and their combination, in any case, fails to present a prima facie case of obvious case of obviousness ... the Examiner is

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actually only applying improper hindsight reconstruction, and in any case the new

Declaration evidence of unexpectedly superior results supports the patentability ...”

(Remarks, page 4, bottom paragraph) has been reconsidered, but is not persuasive.

First, the Examiner reasserts that, in the absence of unexpected results, it would have

been obvious to one of ordinary skill in the art to modify the thermoplastic foams of WO

‘573 with the hydrated metal compounds taught by Nakae. In particular, it should be

noted that Nakae’s teaching does clearly encompass transition metal oxide, and also

double salt containing compound (i.e., composite metal hydrides) as claimed, and

nowhere is there an express or implicit teaching that the combination of the salts for

forming the double salt is to be limited, Applicants’ hindsight argument bears no merit.

Second, regarding the “superior results”, the reasoning in the Declaration of Takayuki

Yamamoto “... use of the specific metal hydroxide ... can satisfy flame retardancy of the

material and can also remarkably increase a degree of expansion of an expanded

material. The unexpectedly superior results are attributed to ... the metal hydroxide has

good affinity with a resin. Therefore, a resin fluidizes well, and pores grow ... a high

degree of expansion is obtained ...” (Declaration, pages 6-7) has been carefully

considered, but is not persuasive. The Examiner respectfully notes that the “superior

results” merely appear to be certain inherent differences between selected flame

retardants, which are *all* read upon by Nakae’s teaching, as set forth above. In other

words, since Nakae teaches the flame retardants as claimed, the “superior results”

merely appear to be undocumented properties of Nakae’s flame retardants, and it

should be noted that mere recognition of undocumented latent properties in the prior art does not render nonobvious an otherwise known invention. MPEP § 2145.II.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S. Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VSC
Victor S Chang
Examiner
Art Unit 1771

9/29/2005



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